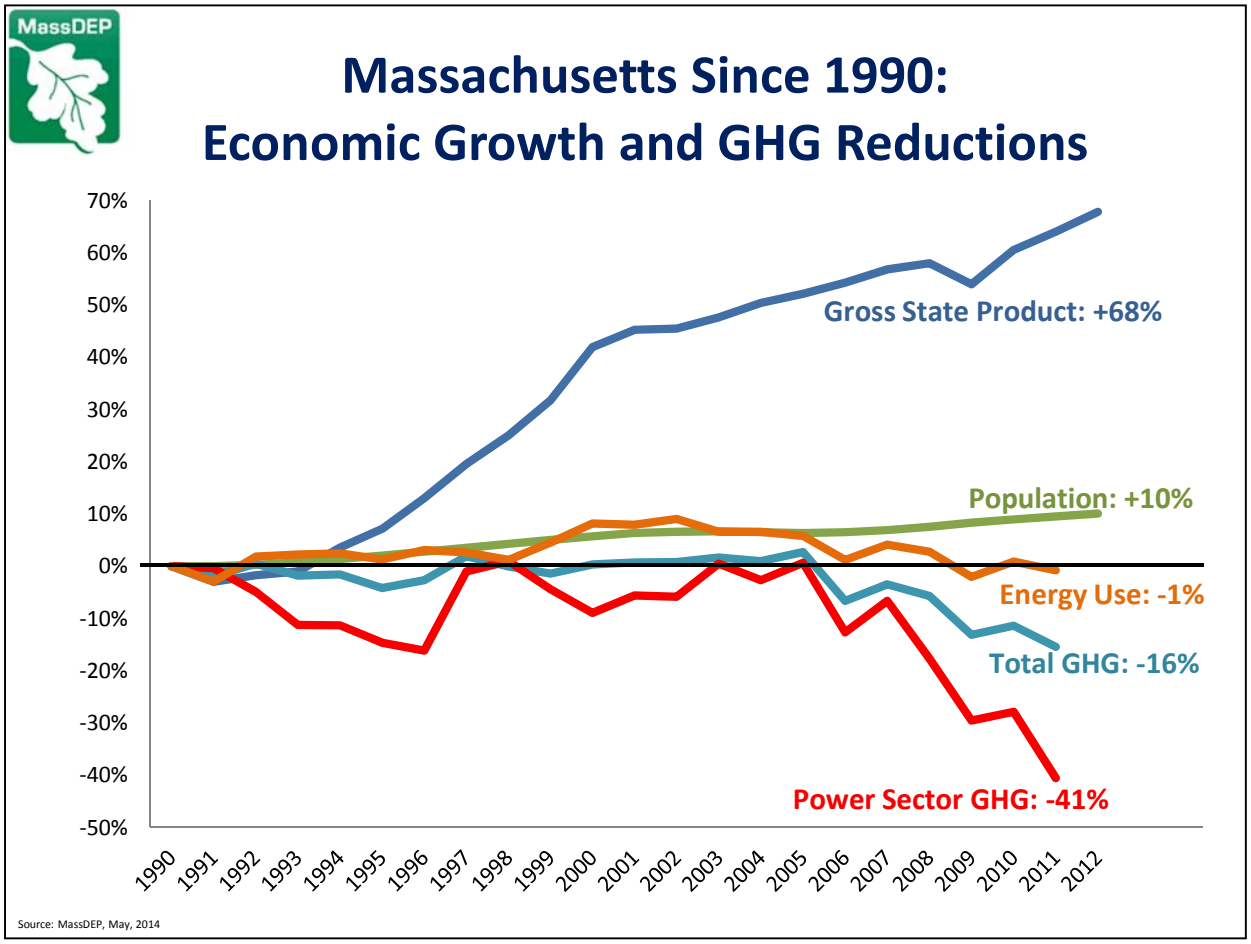
Massachusetts' Success Story: Reducing Greenhouse Gas Emissions while Growing the Economy

The Global Warming Solutions Act (GWSA), signed by Governor Patrick in August of 2008, created a framework for reducing heat-trapping emissions to levels that scientists believe give us a decent chance of avoiding the worst effects of global warming.[1] It requires reductions from all sectors of the economy to reach a 25% reduction of greenhouse gas emissions (GHGs) below 1990 levels by 2020 and an 80% reduction by 2050, the path towards which is laid out in the **Massachusetts Clean Energy and Climate Plan for 2020**.[2]

Thanks to these efforts, since 1990 statewide GHG emissions have fallen 16%, while over the same period Gross State Product has increased 68%. These results clearly disprove the myth that environmental protection hinders economic progress. In the past decades—against a backdrop of tightening federal and state emission limits on many sectors from factories and power plants to automobiles—Massachusetts' population and total energy use have grown modestly as the state's economy has increased dramatically. Over the same period, emissions of greenhouse gases and other air pollutants have dropped. Massachusetts looks forward to continuing this trend of emissions reductions coupled with economic growth as it works towards the limits set by the Global Warming Solutions Act and federal stationary source GHG regulations.



[1] For more information, see the **Global Warming Solutions Act Dashboard**: http://www.mass.gov/eea/air-water-climate-change/climate-change/massachusetts-global-warming-solutions-act/global-warming-solutions-act-dashboard.html. Except for where otherwise noted, all data in this document is drawn from the Dashboard, updated by MassDEP October 2013.

[2] http://www.mass.gov/eea/docs/eea/energy/2020-clean-energy-plan.pdf

Massachusetts is showing the way to a clean energy economy—and it is reaping some of the direct benefits in economic growth—through the development of smart, targeted policies that reduce emissions by promoting greater energy efficiency, developing renewable energy, and encouraging other alternatives to the combustion of fossil fuels. Elements of this success include:

- **From 1990 to 2011, the New England electric grid operator indicates total Massachusetts electric consumption increased by 22%**; however, associated emissions dropped 37% because higher carbon fuels like coal and oil are being replaced with cleaner fuels like natural gas and renewable sources. This shift can be attributed to successes of the renewable energy requirements, the regional CO_2 cap-and-trade system, air quality regulations and the recent natural gas boom in the United States. In recent years the growth rate in electric demand has flattened due in large part to investment in end use energy efficiency.
- **Massachusetts is one of the states participating in the Regional Greenhouse Gas Initiative (RGGI)**, the nation's first market-based regulatory program to cap and reduce greenhouse gas emissions from large fossil-fueled power plants. Massachusetts has directed the vast majority of its RGGI proceeds into clean energy programs and initiatives. Since 2008, Massachusetts has received more than $268 million in RGGI auction proceeds, which it has used to implement energy programs that improve building efficiency, comfort, durability, health, and affordability for individuals, businesses, and state and local governments.[3]
- **Massachusetts is saving energy every year with new energy efficiency investments and programs** as the state continues to embrace efficiency as its "First Fuel." These diverse programs have saved enough electricity to power almost 110,000 homes for a year and enough natural gas to heat 15,000 homes for a year. Energy efficiency has reduced greenhouse gas emissions by more than 431,000 metric tons—the equivalent of taking about 85,000 cars off Massachusetts' roads for a whole year. For every one dollar invested in efficiency, the average benefit was $4.17 for homeowners and $5.10 for businesses. Massachusetts' bold energy efficiency initiatives have made it the most energy efficient state in the country for the last three years, according to the American Council on an Energy Efficient Economy.[4]
- **Massachusetts is dramatically boosting renewable energy generation.** Due to financial incentives such as renewable energy credits, net metering, and long-term contracts, solar energy capacity has grown from 1.64 MW in 2007 to 496 MW in 2014, reaching Governor Patrick's goal of 250 MW 4 years early;[5] wind energy has grown from 1.64 MW to 103 MW in these same years.[6] And Massachusetts is vigorously pursuing other clean energy solutions, such as combined heat and power, and energy from the anaerobic digestion of food waste.
- **Green building standards have created new markets** for energy efficient building design, retrofit, and operations. Almost 200 new LEED-certified buildings were constructed in Massachusetts from 2001-2011.
- **The Commonwealth's clean energy industry is growing rapidly**, despite a tough economic environment nationally. Surveys by the Clean Energy Center show that there was an increase in clean energy jobs of 11.8% in 2013 and now almost 80,000 employees are working in clean energy throughout the Commonwealth. Since 2011, growth in the clean energy sector has outpaced the growth in the overall Massachusetts economy by more than eight times. Clean energy continues to maintain its place as one of the Commonwealth's marquee industries with 1.9% of the total Massachusetts workforce.

[3] http://rggi.org/market/co2_auctions/results
[4] ACEEE, The State Energy Efficiency Scorecard, http://aceee.org/state-policy/scorecard
[5] http://www.mass.gov/eea/docs/doer/renewables/installed-solar.pdf
[6] http://www.mass.gov/eea/docs/doer/renewables/installed-wind.pdf